



Substitute Specification

03392/LH

**OUTDOOR DRYER**

FIELD OF THE INVENTION

The invention relates to an umbrella-type laundry drying  
5 rack.

BACKGROUND OF THE INVENTION

In general, to enable outdoor drying racks to hold large  
amounts of laundry, laundry drying racks in their operational  
state have a large size. It is therefore already known that  
10 they can be stored in a space-saving way by being collapsed.  
This means that before each use of the laundry drying rack,  
its load-bearing arms have to be folded out. Deploying the  
laundry drying rack requires the exertion of comparatively  
great force in the initial phase, until the load-bearing arms  
15 have moved past a certain angular position relative to the  
vertical support. To improve this unsatisfactory situation,  
an attempt has already been made to use a pull cord guided  
like a corkscrew for a wine bottle. But even such a device  
cannot make it easier to deploy the laundry drying rack until  
20 the load-bearing arms have been pivoted out of their vertical  
position of repose by a significant angular amount; that has  
to be done by hand.

To make it easier to pivot the load-bearing arms outward, it has already been proposed that a spreader body be mounted longitudinally displaceably on the vertical support of an umbrella-type laundry drying rack; the spreader body  
5 cooperates with support elements mounted on spreader arms, and upon longitudinal displacement, it pivots the spreader arms and with them the load-bearing arms for the clothes lines out of their folded-up position of repose. Such an apparatus can indeed facilitate deploying the laundry drying  
10 rack but entails major structural effort and expense.

#### OBJECT AND SUMMARY OF THE INVENTION

It is therefore the object of the invention to create a laundry drying rack of the type defined at the outset that assures simple deployment with high functional safety and  
15 reliability and that is simple to produce.

The object of the present invention is attained by providing an umbrella-type laundry drying rack having a vertical support and having load-bearing arms for clothes lines, wherein the load-bearing arms are disposed pivotably  
20 on the support about respective pivot pins, and the load-bearing arms are pivotable between a first position close to the support and a second position remote from the support and

are coupled to one another such that upon pivoting of one of the load-bearing arms, the other load-bearing arms are jointly pivoted in the same way, and wherein at least one load-bearing arm has a means for its forced deflection out of the first position outward, upon exertion of a force oriented  
5 away from the support to one of the further load-bearing arms.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1A is a schematic diagram showing a side view of an approximately halfway open laundry drying rack with a tilt lever;  
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Fig. 1B is a schematic diagram showing the laundry drying rack of Fig. 1A in the fully open state;

Fig. 2 is a schematic diagram showing a detail of the laundry drying rack of Figs. 1A and 1B, with one load-bearing arm in a folded-up position near the support;  
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Fig. 3 is a schematic diagram showing an enlarged detail of the laundry drying rack of Figs. 1A and 1B, with one load-bearing arm in an outward- deflected position;

Fig. 4 is a schematic diagram showing a detail of the laundry drying rack of Figs. 1A and 1B, with one load-bearing arm in a fully outward-pivoted position;  
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Fig. 5 is a schematic diagram showing a detail of a laundry drying rack with a gear wheel segment and a toothed sleeve; and

Fig. 6 is a schematic diagram showing a detail of a laundry drying rack with a connecting rod and a connecting rod sleeve.

#### DETAILED DESCRIPTION

Fig. 1A shows an umbrella-type laundry drying rack with a vertical support 1, on which load-bearing arms 2 for clothes lines, not otherwise shown, are disposed. The laundry drying rack has four load-bearing arms 2 disposed symmetrically to the center axis 4 of the vertical support 1. For the sake of simplicity, only the right and left load-bearing arms 2 have been shown here, while in this view the front and rear load-bearing arms have been omitted. The load-bearing arms 2 are located in a deflected-outward position in which they have been unfolded from the vertical support 1. The load-bearing arms 2 are disposed pivotably, about pivot pins 6, on a sleeve 8 that is displaceable relative to the support 1. For reasons of stability, the load-bearing arms 2 are also each braced on the support 1 by a respective spreader arm 10. Each spreader arm 10 is

pivotable on the one hand about a retaining shaft 12 disposed on the support 1 and on the other about an articulation shaft 14 disposed on the load-bearing arm 2. The articulation shaft 14 on the left load-bearing arm 2 is not  
5 disposed directly on the load-bearing arm 2 but rather on a tilt lever 16, which is pivotable on the load-bearing arm 2 about a tilt pin 18.

The laundry drying rack of Fig. 1A is shown in Fig. 1B in the fully open state. In Figs. 1A and 1B and all the  
10 other figures, identical or equivalent components are identified by the same reference numerals. In Fig. 1B, the load-bearing arms 2 are in the fully outward-pivoted position relative to the vertical support 1, and the clothes lines - not shown here - extend taut, and with vertical spacing from  
15 one another, in the horizontal direction between the load-bearing arms 2. It can be seen that in the open state of the laundry drying rack, the tilt lever 16 rests on the corresponding spreader arm 10.

Fig. 2 shows the left load-bearing arm 2 of the laundry  
20 drying rack of Figs. 1A and 1B in a first position, close to the support, where it is folded up against the vertical support 1. It can be seen that the load-bearing arm 2 has a tilt lever holder 20 with a tilt pin 18 of the tilt lever 16.

In the folded-up position shown here, the tilt lever 16 rests on the one hand with a lug 23 on the vertical support 1 and on the other, it rests lengthwise on a spreader arm 10. The spreader arm 10 is joined to the tilt lever 16 via an articulation shaft 14.

With reference to Figs. 1A, 1B and 2, the unfolding or deployment of the laundry drying rack proceeds as follows. One load-bearing arm, which in terms of a vertical support 1 is opposite to, or in other words faces, a load-bearing arm 2 having a tilt lever 16, is pulled away from the support 1, for instance by means of a handle, and the laundry drying rack is thus pulled open. As a result, the sleeve 8, to which all the load-bearing arms are secured, is pulled upward along the support 1. As a result, the tilt lever 16, by means of the load-bearing arm 2 connected to it and by means of a lug 23 of the tilt lever 16 that rests on the support 1, forces the load-bearing arm 2 outward. In a first intermediate position, which is emphasized in Fig. 1A by means of a detail III (shown enlarged in Fig. 3), the tilt lever 16 is located approximately horizontally between the load-bearing arm 2 and the vertical support 1. The spreader arm 10 is in a half-open intermediate position.

As the laundry drying rack is pulled farther open, the load-bearing arms 2 reach the operating position shown in Fig. 1B. In it, the tilt lever 16 (as in its outset position shown in Fig. 2) is again placed against the spreader arm 10 (see detail IV in Fig. 1B, shown enlarged in Fig. 4).

In each of the laundry drying racks shown in Figs. 1A and 1B through Fig. 4 and in the other laundry drying racks shown in Figs. 5 and 6 and described hereinafter, the laundry drying rack can be opened by simply pulling one load-bearing arm 2 away from a vertical support 1.

A detail of another embodiment of an umbrella-type laundry drying rack is shown in Fig. 5. In this laundry drying rack as well, a vertical support 1 is provided with four load-bearing arms 2, of which only two are shown here for the sake of simplicity. The load-bearing arms 2 are supported pivotably, by means of pivot pins 32, on a sleeve 30 that is displaceable relative to the support 1. On their lower end, the load-bearing arms 2 each have one gear wheel segment 34, which is disposed centrally to the pivot pin 32 of the respective load-bearing arm 2 and which engages a toothed sleeve 36 that is displaceable relative to the support 1. As in the laundry drying rack of Figs. 1A and 1B

through Fig. 4, the laundry drying rack of Fig. 5 also has spreader arms on its load-bearing arms 2. The spreader arms are joined to the support 1 in the corresponding way and are not shown here. Pulling on a handle 38, which is disposed on one of the load-bearing arms 2, not only causes an outward deflection of this load-bearing arm away from the vertical support 1 but also (with transmission by the gear wheel segment 34 and the toothed sleeve 36) a forced deflection of the load-bearing arm 2 that is located opposite, in terms of the vertical support 1, the load-bearing arm 2 that has the handle 38.

In Fig. 6, a detail of a further laundry drying rack is shown, with a vertical support 1 that has load-bearing arms 2 that are each joined pivotably to the support 1 about respective pivot pins 6. The pivot pins 6 are disposed on a sleeve 8 that is displaceable relative to the support 1. A connecting rod sleeve 22 is also provided, which is likewise displaceable relative to the support 1 and is connected to each of the load-bearing arms 2 by a respective connecting rod 24. Each connecting rod 24 is mounted movably on the connecting rod sleeve 22, where it is pivotable about a pivot pin 26, and on the load-bearing arms 2 where it is pivotable about a pivot pin 28. The load-bearing arms 2 of the laundry



drying rack of Fig. 6 are likewise (analogously to the laundry drying racks of Figs. 1A and 1B through Fig. 5) provided with spreader arms, not shown here, which are also secured in a corresponding way to the support 1.

5           Because it is easy to exert the force for deploying the laundry drying rack immediately onto a load-bearing arm, complicated transfer elements for this force are unnecessary. Only on at least one of the further load-bearing arms is a means for forced deflection provided. When the laundry  
10       drying rack is deployed, immediately after the forced deflection of the first load-bearing arm the further load-bearing arms are pivoted out of their position of repose as well, because of the coupling of the load-bearing arms to one another.

15           A laundry drying rack according the present invention has an especially small number of components and is not only simple and economical to produce but also extraordinarily safe and reliable in operation and invulnerable to wear. It is true that a plurality of load-bearing arms or even each  
20       load-bearing arm may be provided with a means for forced deflection out of the first position, that is, the position of repose, but experiments have shown that it is entirely

adequate for such a means to be provided on only one of the load-bearing arms.

According to an advantageous embodiment of the invention, the load-bearing arm having the means for forced deflection is disposed, relative to the support, opposite a load-bearing arm provided for exerting the force oriented away from the support. As a result, only a very slight exertion of force suffices to deploy the laundry drying rack.

Adequately high stability of the laundry drying rack is advantageously attained if the load-bearing arms are each braced on the support with a respective spreader arm that is pivotable on the one hand about a retaining shaft disposed on the support and on the other about an articulation shaft disposed on the load-bearing arm.

According to an advantageous embodiment of the invention, the laundry drying rack becomes simple to use and at the same time has high stability because the retaining shafts of the spreader arms are disposed fixedly on the support.

To assure simple, operationally safe and reliable deployment of the laundry drying rack, the pivot pins of the load-bearing arms are advantageously disposed on a sleeve that is displaceable relative to the support. Such an

embodiment furthermore allows adjusting the height of the laundry drying rack. This means that the load-bearing arms for the clothes lines, in the deployed state of the laundry drying rack, can be fixed at different heights, making it  
5 easy to hang articles of laundry on the clothes lines, regardless of the height of the person using the laundry drying rack of the present invention.

The laundry drying rack of the present invention can have a large number of load-bearing arms. However, a great  
10 usable length of clothes line with simultaneously high stability and low weight of the laundry drying rack are advantageously obtained if four load-bearing arms are provided.

According to an advantageous embodiment of the  
15 invention, one load-bearing arm has a handle, and this load-bearing arm is intended for exerting the force oriented away from the support. As a result, the introduction of force into the load-bearing arm is improved, without requiring complicated additional devices for operating it. In this  
20 connection, moreover, it is possible for the handle on the load-bearing arm to be made adjustable, so that a user-specific setting can be made.

For the means for forced deflection of the load-bearing arm, various embodiments are possible. For example, it is possible to achieve virtually no operating wear of the laundry drying rack if the means for forced deflection of the load-bearing arm has a tilt lever that on the one hand can be pivoted about a tilt pin on the load-bearing arm and on the other can be braced on the support. Such an embodiment of the laundry rack may be very easily produced. The laundry drying rack, moreover, can be opened especially easily and with only little exertion of force if the tilt lever carries the articulation shaft of the corresponding spreader arm, and the articulation shaft of the spreader arm is disposed between the tilt pin of the tilt lever and an end of the tilt lever that can be braced on the support.

Another advantageous, very precise means for forced deflection of the load-bearing arm comprises a toothed sleeve, which is displaceable relative to the support, and a gear wheel or gear wheel segment that engages the toothed sleeve and is disposed on the load-bearing arm. A very compact, space-saving structure can be achieved if the toothed sleeve is disposed displaceably in the sleeve, on which the pivot pins of the load-bearing arms are disposed and which is displaceable relative to the support. The

number of components can be advantageously reduced further if the toothed sleeve is drivable by a gear wheel or gear wheel segment disposed on a load-bearing arm intended for exerting the force oriented away from the support.

5           According to another advantageous embodiment of the invention, the means for forced deflection of the load-bearing arm comprises a connecting rod disposed on the one hand pivotably on a connecting rod sleeve that is displaceable relative to the support and on the other  
10           pivotably on the load-bearing arm. In this way, an especially low-wear design that is secure against jamming is achieved. The laundry drying rack, moreover, may be constructed especially simply and is operationally safe if the connecting rod sleeve is drivable by a connecting rod  
15           that is connected to a load-bearing arm intended for exerting the force oriented away from the support.